

Amendment to the Claims:

Please amend the claims as follows:

Please cancel claims 10 to 12, 77 to 80, 84 to 86, 123, 125 to 129, 136, 137 and 167 to 175 without prejudice or disclaimer.

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An isolated, synthetic or recombinant nucleic acid comprising:

- (a) a nucleic acid sequence encoding a polypeptide having alpha amylase activity, wherein the nucleic acid sequence has at least 90% sequence identity to the sequence of SEQ ID NO:125,
- (b) a nucleic acid sequence encoding a polypeptide having alpha amylase activity, wherein the polypeptide comprises (i) an [[the]] amino acid sequence having [[has]] at least 90% sequence identity to the sequence of SEQ ID NO:126, or (ii) enzymatically active fragments of (i);
- (c) the nucleic acid of (a) or (b) and comprising a sequence encoding a polypeptide having at least one conservative amino acid substitution as compared to the polypeptide encoded by (a) or (b), wherein the conservative amino acid substitutions comprise comprising: replacement of an aliphatic amino acid with another aliphatic amino acid; replacement of a Serine with a Threonine or vice versa; replacement of an acidic residue with another acidic residue; replacement of a residue bearing an amide group with another residue bearing an amide group; exchange of a basic residue with another basic residue; or replacement of an aromatic residue with another aromatic residue;
- (d) the nucleic acid of (a), (b) or (c) encoding a polypeptide lacking a signal sequence;
- (e) the nucleic acid of (a), (b), (c) or (d) further comprising a heterologous sequence;
- (f) the nucleic acid of (e), wherein the heterologous sequence comprises a sequence encoding a heterologous signal sequence;
- (g) the nucleic acid of (e), wherein the heterologous sequence comprises a sequence encoding an N-terminal identification peptide; or
- (h) sequences completely complementary to (a), (b), (c), (d), (e), (f) or (g).

Claim 2 (currently amended): An isolated, synthetic or recombinant nucleic acid that hybridizes under stringent conditions to SEQ ID NO:125, or its complement, wherein the nucleic acid comprises a sequence selected from the group consisting of:

- (a) a nucleic acid sequence encoding a polypeptide having alpha amylase activity, wherein the nucleic acid sequence has at least 90% sequence identity to the sequence of SEQ ID NO:125, or its complement;
- (b) a nucleic acid sequence (i) encoding a polypeptide having alpha amylase activity, wherein the polypeptide comprises (A) an amino acid nucleic acid sequence [[has]] having at least 90% sequence identity to the sequence of SEQ ID NO:126, or (B) enzymatically active fragments of (A), or (ii) completely complementary to (i);
- (c) the nucleic acid of (a) or (b) encoding a polypeptide lacking a signal sequence;
- (d) the nucleic acid of (a), (b) or (c) further comprising a heterologous sequence;
- (e) the nucleic acid of (d), wherein the heterologous sequence comprises a sequence encoding a heterologous signal sequence;
- (f) the nucleic acid of (e), wherein the heterologous sequence comprises a sequence encoding an N-terminal identification peptide; and
- (g) sequences completely complementary to (a), (b), (c), (d), (e) or (f);

wherein the stringent conditions comprise a wash step comprising 30 minutes at room temperature in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na2EDTA, 0.5% SDS, followed by a 30 minute wash in fresh solution at Tm-10°C.

Claim 3 (previously presented): An isolated, synthetic or recombinant nucleic acid encoding a polypeptide having alpha amylase activity that hybridizes under stringent conditions to a sequence selected from the group consisting of: (a) the sequence of SEQ ID NO:125; (b) a sequence encoding a polypeptide having the sequence of SEQ ID NO:126; and, (c) sequences completely complementary to (a) or (b);

wherein the stringent conditions comprise a wash step comprising 30 minutes at room temperature in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM

Na₂EDTA, 0.5% SDS, followed by a 30 minute wash in fresh solution at Tm-10°C, and wherein the sequence encodes a polypeptide having alpha amylase activity.

Claim 4 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 2 or claim 3, wherein the Tm=81.5+16.6(log [Na+])+0.41(fraction G+C)-(0.63% formamide)-(600/N) where N is the length of the nucleic acid.

Claim 5 (canceled)

Claim 6 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 1 or claim 2, wherein the nucleic acid sequence identity is determined by using a method comprising use of a BLASTN program algorithm with default parameters or the polypeptide sequence identity is determined by using a method comprising use of a BLAST P program algorithm with default parameters.

Claims 7 to 13 (canceled)

Claim 14 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 1, wherein the sequence identity of (a) or (b) is at least about 97%.

Claim 15 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 1, wherein the sequence identity of (a) or (b) is at least about 95%.

Claim 16 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 1 or claim 2, wherein the sequence identity is determined using a sequence comparison algorithm comprising FASTA version 3.0t78 with the default parameters.

Claim 17 (currently amended): A probe comprising the [[a]] nucleic acid comprising at least 500 consecutive bases of a sequence as set forth in claim 1 or claim 2, wherein the probe can hybridize to an amylase-encoding gene under stringent conditions comprising a wash step

comprising a wash for 30 minutes at room temperature in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na₂EDTA, 0.5% SDS, followed by a 30 minute wash in fresh solution.

Claims 18 to 46 (canceled)

Claim 47 (currently amended): A method of producing a polypeptide having (i) an amino acid sequence having at least about 90% sequence identity to the amino acid sequence of SEQ ID NO:126, or (ii) enzymatically active fragments of (i), comprising the steps of introducing a nucleic acid encoding the polypeptide into a host cell under conditions that allow expression of the polypeptide, wherein the expressed polypeptide has alpha amylase activity.

Claim 48 (previously presented): A method of producing a polypeptide having amylase activity, comprising the steps of: providing a nucleic acid having the nucleic acid sequence of claim 1; and introducing the nucleic acid encoding the polypeptide, operably linked to a promoter, into a host cell under conditions that allow expression of the polypeptide.

Claims 49 to 73 (canceled)

Claim 74 (withdrawn): An assay for identifying a polypeptide having amylase activity comprising the steps of:

- (a) providing a nucleic acid as set forth in claim 1;
- (b) expressing the nucleic acid to provide a polypeptide;
- (c) contacting the polypeptide, with a substrate molecule under conditions which allow the polypeptide to function; and
- (d) detecting either a decrease in an amount of a substrate or an increase in an amount of a reaction product which results from a reaction between said polypeptide and said substrate; wherein a decrease in the amount of the substrate or an increase in the amount of the reaction product is indicative of existence of the functional polypeptide.

Claim 75 (currently amended): A nucleic acid probe for identifying or isolating an amylase-encoding gene, comprising an oligonucleotide, ~~wherein the oligonucleotide consists of at least about 75 contiguous nucleotides of a sequence as set forth in claim 2; and~~ which hybridizes under stringent conditions to SEQ ID NO:125 and the stringent hybridization conditions comprise a wash step comprising a wash for 30 minutes at room temperature in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na₂EDTA, 0.5% SDS, followed by a 30 minute wash in fresh solution.

Claim 76 (previously presented): The nucleic acid probe of claim 75, wherein the oligonucleotide comprises DNA or RNA.

Claims 77 to 87 (canceled)

Claim 88 (previously presented): The nucleic acid probe of claim 75, wherein the probe further comprises a detectable isotopic label.

Claim 89 (previously presented): The nucleic acid probe of claim 75, wherein the probe further comprises a detectable non-isotopic label selected from the group consisting of a fluorescent molecule, a chemiluminescent molecule, an enzyme, a cofactor, an enzyme substrate, and a hapten.

Claims 90 to 91 (canceled)

Claim 92 (previously presented): The nucleic acid probe of claim 75, wherein the stringent conditions comprise a wash step comprising 30 minutes at room temperature in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na₂EDTA, 0.5% SDS, followed by a 30 minute wash in fresh solution at T_m-10°C.

Claims 93 to 101 (canceled)

Claim 102 (previously presented): A cloning vector comprising a sequence that encodes a polypeptide having alpha amylase activity, said sequence comprising a sequence as set forth in claim 2.

Claim 103 (previously presented): A host cell comprising a nucleic acid having a sequence that encodes a polypeptide having alpha amylase activity, said sequence comprising a sequence as set forth in claim 2.

Claim 104 (previously presented): An expression vector capable of replicating in a host cell comprising a polynucleotide having a sequence as set forth in claim 2.

Claim 105 (previously presented): A vector as claimed in claim 102, wherein the vector is selected from the group consisting of viral vectors, plasmid vectors, phage vectors, phagemid vectors, cosmids, fosmids, bacteriophages, artificial chromosomes, adenovirus vectors, retroviral vectors, and adeno-associated viral vectors.

Claim 106 (previously presented): A host cell comprising an expression vector as claimed in claim 104.

Claim 107 (previously presented): A host cell as claimed in claim 103, wherein the host is selected from the group consisting of prokaryotes, eukaryotes, funguses, yeasts, and plants.

Claim 108 (withdrawn): A method for liquifying a starch containing composition comprising contacting the starch with a polypeptide encoded by a nucleic acid comprising a sequence as set forth in claim 1.

Claims 109 to 111 (canceled)

Claim 112 (withdrawn): A method for washing an object comprising contacting said object with a polypeptide encoded by a nucleic acid comprising a sequence as set forth in claim 1, under conditions sufficient for said washing.

Claim 113 (withdrawn): A method for textile desizing comprising contacting said textile with a polypeptide encoded by a nucleic acid comprising a sequence as set forth in claim 1, under conditions sufficient for said desizing.

Claim 114 (withdrawn): A method for the treatment of lignocellulosic fibers, wherein the fibers are treated with a polypeptide encoded by a nucleic acid comprising a sequence as set forth in claim 1, in an amount which is efficient for improving the fiber properties.

Claim 115 (withdrawn): A method according to claim 113 for enzymatic deinking of recycled paper pulp, wherein the polypeptide encoded by a nucleic acid comprising a sequence as set forth in claim 1 is applied in an amount which is efficient for effective deinking of the fiber surface.

Claim 116 (withdrawn): A method for starch liquefaction comprising contacting said starch with a polypeptide encoded by a nucleic acid comprising a sequence as set forth in claim 1 under conditions sufficient for said liquefaction.

Claim 117 (canceled)

Claim 118 (withdrawn): A method for producing a high-maltose or a high-glucose syrup or a mixed syrup comprising:

liquefying starch using an effective amount of a polypeptide encoded by a nucleic acid comprising a sequence as set forth in claim 1 to obtain a soluble starch hydrolysate; and
saccharifying the soluble starch hydrolysate, thereby resulting in a syrup.

Claim 119 (withdrawn): The method of claim 118, wherein the starch is from a material selected from rice, germinated rice, corn, barley, wheat, legumes and sweet potato.

Claim 120 (withdrawn): The method of claim 118, further comprising addition of a second alpha amylase or a beta amylase or a combination thereof.

Claim 121 (withdrawn): A method of increasing the flow of production fluids from a subterranean formation by removing a viscous, starch-containing, damaging fluid formed during production operations and found within the subterranean formation which surrounds a completed well bore comprising:

allowing production fluids to flow from the well bore;

reducing the flow of production fluids from the formation below expected flow rates;

formulating an enzyme treatment by blending together an aqueous fluid and a polypeptide encoded by a nucleic acid comprising a sequence as set forth in claim 1;

pumping the enzyme treatment to a desired location within the well bore;

allowing the enzyme treatment to degrade the viscous, starch-containing, damaging fluid, whereby the fluid can be removed from the subterranean formation to the well surface; and

wherein the enzyme treatment is effective to attack the alpha glucosidic linkages in the starch-containing fluid.

Claim 122 (currently amended): The method of claim 47, wherein the method produces a polypeptide having (i) an amino acid sequence having [[has]] at least 97% sequence identity to the amino acid sequence of SEQ ID NO:126, or (ii) enzymatically active fragments of (i) over a region of at least about 150 consecutive residues.

Claim 123 (canceled)

Claim 124 (currently amended): The method of claim 47, wherein the nucleic acid sequence identity is determined by using a method comprising use of a BLASTN program algorithm with

~~default parameters~~ or the polypeptide sequence identity is determined by using a method comprising use of a BLAST P algorithm with default parameters.

Claims 125 to 129 (canceled)

Claim 130 (previously presented): A method of producing a polypeptide encoded by a nucleic acid having at least 90% sequence identity to the nucleic acid sequence of SEQ ID NO:125, comprising the steps of introducing a nucleic acid encoding the polypeptide into a host cell under conditions that allow expression of the polypeptide, wherein the expressed polypeptide has alpha amylase activity.

Claim 131 (previously presented): A method of producing a polypeptide encoded by a nucleic acid of claim 2, comprising the steps of introducing a nucleic acid encoding the polypeptide into a host cell under conditions that allow expression of the polypeptide, wherein the expressed polypeptide has alpha amylase activity.

Claim 132 (currently amended): A method of producing a polypeptide encoded by a nucleic acid of claim 14 [[10]], comprising the steps of introducing a nucleic acid encoding the polypeptide into a host cell under conditions that allow expression of the polypeptide, wherein the expressed polypeptide has alpha amylase activity.

Claim 133 (currently amended): A method of producing a polypeptide encoded by a nucleic acid of claim 15 [[12]], comprising the steps of introducing a nucleic acid encoding the polypeptide into a host cell under conditions that allow expression of the polypeptide, wherein the expressed polypeptide has alpha amylase activity.

Claim 134 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 1, wherein the sequence identity of (a) or (b) is at least about 98%.

Claim 135 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 1, wherein the sequence identity of (a) or (b) is at least about 99%.

Claims 136 and 137 (canceled)

Claim 138 (currently amended): A method of producing a polypeptide having amylase activity, comprising the steps of: providing a nucleic acid having a sequence as set forth in claim 134 [[10]] or claim 135 [[12]]; and introducing the nucleic acid encoding the polypeptide, operably linked to a promoter, into a host cell under conditions that allow expression of the polypeptide.

Claim 139 (currently amended): A cloning or expression vector comprising a sequence that encodes a polypeptide having alpha amylase activity, said sequence comprising a nucleic acid sequence of as set forth in claim 1 40 or 12.

Claim 140 (currently amended): A host cell comprising a nucleic acid having a sequence that encodes a polypeptide having alpha amylase activity, said sequence comprising a nucleic acid sequence of as set forth in claim 1 40 or 12.

Claim 141 (currently amended): A cloning or expression vector capable of replicating in a host cell comprising a polynucleotide having a nucleic acid sequence of as set forth in claim 1 40 or 12.

Claim 142 (previously presented): The cloning or expression vector of claim 139, wherein the vector is selected from the group consisting of viral vectors, plasmid vectors, phage vectors, phagemid vectors, cosmids, fosmids, bacteriophages, artificial chromosomes, adenovirus vectors, retroviral vectors, and adeno-associated viral vectors.

Claim 143 (previously presented): An isolated, synthetic or recombinant nucleic acid comprising (a) a nucleic acid sequence encoding a polypeptide having amylase activity, wherein the

nucleic acid sequence has at least 95% sequence identity to the nucleic acid sequence of SEQ ID NO:125, (b) a nucleic acid sequence encoding a polypeptide having amylase activity, wherein the polypeptide has an amino acid sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:126; or (c) sequences completely complementary to (a) or (b).

Claim 144 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 143, wherein the sequence identity in (a) or (b) is 97%.

Claim 145 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 143, wherein the sequence identity in (a) or (b) is 98%.

Claim 146 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 143, wherein the sequence in (a) is SEQ ID NO:125, and the sequence in (b) is SEQ ID NO:126.

Claim 147 (currently amended): A method for producing a feed or food comprising a recombinant amylase, the method comprising the steps of:

- (a) providing a nucleic acid comprising a sequence as set forth in claim 1;
- (b) providing a composition comprising a feed or food;
- (c) expressing the nucleic acid to produce a recombinant amylase; and
- (d) mixing the recombinant amylase and the feed-comprising or food-comprising composition, thereby producing a feed or food comprising a recombinant amylase.

Claim 148 (previously presented): A method of hydrolyzing a starch linkage comprising contacting a substance containing the starch with a polypeptide having amylase activity encoded by a nucleic acid of claim 1, under conditions which facilitate the hydrolysis of the starch linkage,

wherein optionally the starch is isolated or derived from rice, germinated rice, corn, barley, wheat, legumes, sweet potato, milo, sorghum, rye, bulger or a combination thereof,

and optionally the method further comprises addition of a second amylase, an alpha amylase or a beta amylase or a combination thereof.

Claim 149 (previously presented): A method of catalyzing the breakdown of a starch, comprising the step of contacting a sample containing starch with a polypeptide having amylase activity encoded by a nucleic acid of claim 1, under conditions which facilitate the breakdown of the starch,

wherein optionally the starch is isolated or derived from rice, germinated rice, corn, barley, wheat, legumes, sweet potato, milo, sorghum, rye, bulger or a combination thereof,

and optionally the method further comprises addition of a second amylase, an alpha amylase or a beta amylase or a combination thereof.

Claim 150 (previously presented): A method for making an alcohol comprising contacting a starch-comprising composition with a polypeptide having amylase activity encoded by a nucleic acid of claim 1.

Claim 151 (previously presented): The method of claim 150, wherein the method further comprises contacting the starch-comprising composition with a second polypeptide having amylase activity, or an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 152 (previously presented): The method of claim 150, wherein the alcohol comprises a fuel ethanol.

Claim 153 (previously presented): A corn wet milling process comprising use of a polypeptide having amylase activity, wherein the polypeptide is encoded by a nucleic acid of claim 1.

Claim 154 (previously presented): The corn wet milling process of claim 152, wherein the process further comprises use of a second polypeptide having amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 155 (previously presented): A baking process comprising use of a polypeptide having alpha amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid of claim 1.

Claim 156 (previously presented): The baking process of claim 155, wherein the baking process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 157 (previously presented): A drilling process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid of claim 1.

Claim 158 (previously presented): The drilling process of claim 157, wherein the drilling process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 159 (previously presented): A brewing process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid of claim 1.

Claim 160 (previously presented): The brewing process of claim 159, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 161 (previously presented): A method for textile processing comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid of claim 1.

Claim 162 (previously presented): The method for textile processing of claim 161, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 163 (currently amended): A method for paper or pulp, or recycled paper or recycled pulp, processing comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid of claim 1.

Claim 164 (previously presented): The method for paper or pulp processing of claim 163, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 165 (previously presented): A method for making a beverage comprising a polypeptide having amylase activity, wherein the polypeptide having alpha amylase activity is encoded by a nucleic acid of claim 1.

Claim 166 (previously presented): The method for making a beverage of claim 165, further comprising a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claims 167 to 175 (canceled)

Claim 176 (new): A method for producing a feed or food comprising a recombinant amylase, the method comprising the steps of:

- (a) providing a nucleic acid comprising the sequence of claim 2;
- (b) providing a composition comprising a feed or food;
- (c) expressing the nucleic acid to produce a recombinant amylase; and
- (d) mixing the recombinant amylase and the feed-comprising or food-comprising composition, thereby producing a feed or food comprising a recombinant amylase.

Claim 177 (new): A method of hydrolyzing a starch linkage comprising contacting a substance containing the starch with a polypeptide having amylase activity encoded by a nucleic acid comprising the sequence of claim 2, under conditions which facilitate the hydrolysis of the starch linkage,

wherein optionally the starch is isolated or derived from rice, germinated rice, corn, barley, wheat, legumes, sweet potato, milo, sorghum, rye, bulger or a combination thereof,

and optionally the method further comprises addition of a second amylase, an alpha amylase or a beta amylase or a combination thereof.

Claim 178 (new): A method of catalyzing the breakdown of a starch, comprising the step of contacting a sample containing starch with a polypeptide having amylase activity encoded by a nucleic acid comprising the sequence of claim 2, under conditions which facilitate the breakdown of the starch,

wherein optionally the starch is isolated or derived from rice, germinated rice, corn, barley, wheat, legumes, sweet potato, milo, sorghum, rye, bulger or a combination thereof,

and optionally the method further comprises addition of a second amylase, an alpha amylase or a beta amylase or a combination thereof.

Claim 179 (new): A method for making an alcohol comprising contacting a starch-comprising composition with a polypeptide having amylase activity encoded by a nucleic acid comprising the sequence of claim 2.

Claim 180 (new): The method of claim 179, wherein the method further comprises contacting the starch-comprising composition with a second polypeptide having amylase activity, or an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 181 (new): The method of claim 179, wherein the alcohol comprises a fuel ethanol.

Claim 182 (new): A corn wet milling process comprising use of a polypeptide having amylase activity, wherein the polypeptide is encoded by a nucleic acid of claim 1.

Claim 183 (new): The corn wet milling process of claim 182, wherein the process further comprises use of a second polypeptide having amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 184 (new): A baking process comprising use of a polypeptide having alpha amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 185 (new): The baking process of claim 184, wherein the baking process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 186 (new): A drilling process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 187 (new): The drilling process of claim 186, wherein the drilling process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 188 (new): A brewing process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 189 (new): The brewing process of claim 188, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 190 (new): A method for textile processing comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 191 (new): The method for textile processing of claim 190, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 192 (new): A method for paper or pulp processing comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 193 (new): The method for paper or pulp processing of claim 192, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 194 (new): A method for making a beverage comprising a polypeptide having amylase activity, wherein the polypeptide having alpha amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 195 (new): The method for making a beverage of claim 194, further comprising a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 196 (new): A method for making a food or feed additive comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 1 or claim 2.

Claim 197 (new): A dry milling process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 1 or claim 2.

Claim 198 (new): A method of making a fuel ethanol comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 1 or claim 2.

Claim 199 (new): An oilfield process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 1 or claim 2.

Claim 200 (new): A feed or food production process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 1 or claim 2.

Claim 201 (new): A method for deinking recycled paper, pulp or fiber comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 1 or claim 2.

Claim 202 (new): A baking process comprising use of a polypeptide having alpha amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 203 (new): The baking process of claim 202, wherein the baking process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 204 (new): A drilling process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 205 (new): The drilling process of claim 204, wherein the drilling process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 206 (new): A brewing process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 207 (new): The brewing process of claim 206, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 208 (new): A method for textile processing comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 209 (new): The method for textile processing of claim 208, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 210 (new): A method for paper or pulp processing comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 211 (new): The method for paper or pulp processing of claim 210, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 212 (new): A method for making a beverage comprising a polypeptide having amylase activity, wherein the polypeptide having alpha amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 213 (new): The method for making a beverage of claim 212, further comprising a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 214 (new): A baking process comprising use of a polypeptide having alpha amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 215 (new): The baking process of claim 214, wherein the baking process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 216 (new): A drilling process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 217 (new): The drilling process of claim 216, wherein the drilling process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 218 (new): A brewing process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 219 (new): The brewing process of claim 218, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 220 (new): A method for textile processing comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 221 (new): The method for textile processing of claim 220, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 222 (new): A method for paper or pulp processing comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 223 (new): The method for paper or pulp processing of claim 222, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 224 (new): A method for making a beverage comprising a polypeptide having amylase activity, wherein the polypeptide having alpha amylase activity is encoded by a nucleic acid comprising the sequence of claim 2.

Claim 225 (new): The method for making a beverage of claim 224, further comprising a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 226 (new): A method for producing a feed or food comprising a recombinant amylase, the method comprising the steps of:

- (a) providing a nucleic acid comprising a sequence as set forth in claim 3;
- (b) providing a composition comprising a feed or food;
- (c) expressing the nucleic acid to produce a recombinant amylase; and
- (d) mixing the recombinant amylase and the feed-comprising or food-comprising composition, thereby producing a feed or food comprising a recombinant amylase.

Claim 227 (new): A method of hydrolyzing a starch linkage comprising contacting a substance containing the starch with a polypeptide having amylase activity encoded by a nucleic acid of claim 3, under conditions which facilitate the hydrolysis of the starch linkage,

wherein optionally the starch is isolated or derived from rice, germinated rice, corn, barley, wheat, legumes, sweet potato, milo, sorghum, rye, bulger or a combination thereof,

and optionally the method further comprises addition of a second amylase, an alpha amylase or a beta amylase or a combination thereof.

Claim 228 (new): A method of catalyzing the breakdown of a starch, comprising the step of contacting a sample containing starch with a polypeptide having amylase activity encoded by a nucleic acid of claim 3, under conditions which facilitate the breakdown of the starch,

wherein optionally the starch is isolated or derived from rice, germinated rice, corn, barley, wheat, legumes, sweet potato, milo, sorghum, rye, bulger or a combination thereof,

and optionally the method further comprises addition of a second amylase, an alpha amylase or a beta amylase or a combination thereof.

Claim 229 (new): A method for making an alcohol comprising contacting a starch-comprising composition with a polypeptide having amylase activity encoded by a nucleic acid of claim 3.

Claim 230 (new): The method of claim 229, wherein the method further comprises contacting the starch-comprising composition with a second polypeptide having amylase activity, or an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 231 (new): The method of claim 229, wherein the alcohol comprises a fuel ethanol.

Claim 232 (new): A corn wet milling process comprising use of a polypeptide having amylase activity, wherein the polypeptide is encoded by a nucleic acid of claim 3.

Claim 233 (new): The corn wet milling process of claim 232, wherein the process further comprises use of a second polypeptide having amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 234 (new): A method for making a food or feed additive comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 3.

Claim 235 (new): A dry milling process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 3.

Claim 236 (new): A method of making a fuel ethanol comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 3.

Claim 237 (new): An oilfield process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 3.

Claim 238 (new): A feed or food production process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 3.

Claim 239 (new): A method for deinking recycled paper, pulp or fiber comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid comprising the sequence of claim 3.

Claim 240 (new): The isolated, synthetic or recombinant nucleic acid of claim 2, wherein the sequence identity in (a) or (b) is 97%.

Claim 241 (new): The isolated, synthetic or recombinant nucleic acid of claim 2, wherein the sequence identity in (a) or (b) is 98%.

Claim 242 (new): A nucleic acid probe for identifying or isolating an amylase-encoding gene, comprising an oligonucleotide which hybridizes under stringent conditions to the nucleic acid of claim 1 or claim 2 and the stringent hybridization conditions comprise a wash step comprising a wash for 30 minutes at room temperature in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na₂EDTA, 0.5% SDS, followed by a 30 minute wash in fresh solution.